

# EVOLUTION

## Variable Character Ladder Filter

Thanks for purchasing (or otherwise acquiring) Evolution. This guide will get you up and running with a minimum of fuss. For lots more details, be sure to check out the full owners manual at:

<http://www.rossum-electro.com/support/documentation/>

### What is this thing?

At the core of Evolution is Dave Rossum's unique implementation of Bob Moog's iconic ladder filter from the original E-mu Systems 1100 LPF submodule (which, incidentally, Dave counts as his favorite sounding of all of the filters he designed). Check out the link above to learn what made the 1100 (and, consequently, Evolution) so special.

For Evolution, Dave has designed new capabilities that not only allow you to dial in all of the outstanding qualities of the original 1100, but combine to let you create the sonic characteristics of a wide variety of other filter types. They include:

- > A Genus control that allows voltage control of the number of filter poles, allowing a range of entirely new and striking audio effects.
- > A Species control that allows voltage control of the signal level into the ladder, letting you control the intensity of the filter's characteristic distortion.
- > Voltage controlled resonance and a variable Q Level Compensation control that lets you control the balance of the resonant peak and the frequencies below the cutoff frequency (which would otherwise be attenuated as the resonance is increased).
- > An extremely accurate and temperature stable frequency control exponential generator, rivaling the specifications of the best analog VCOs.

Taken together, Evolution gives you everything from the platonic ideal of the classic ladder filter to a vast selection of alternative filter characteristics.

### Installation

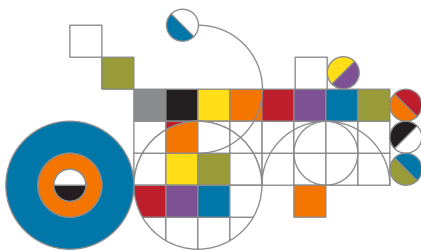
While all Rossum Electro-Music modules are protected against damage to the module or your system from reverse polarity, care should still be taken to connect the power cable correctly.

Plug the 16-pin connector into the header on the rear of the module such that the red stripe on the cable (the -12V side) is on the same end of the header as the "Red Stripe (-12V)" text on the PCB.

Evolution requires, at most, 85mA of +12V and 75mA of -12V.

We have included both M3 and M2.5 (for vector rails) mounting screws. Use what fits your system.

If rack rash is of concern to you, use the included nylon washers when mounting Evolution in your case.



## Functional Overview



**FREQUENCY** Controls the initial cutoff frequency of the filter. The range (without CV input) is from approximately 20Hz to 20kHz when 4 poles are selected.

**Q** Controls the resonance of the filter. At high levels, the filter will oscillate and can be used as a high quality sine wave oscillator.

**GENUS** Selects the initial number of effective poles.

**LEDS** The Pole LED(s) will light to indicate the current effective number of poles.

**SPECIES** Controls the signal level into the ladder, letting you control the intensity of the filter's characteristic distortion. When in self-oscillation mode, this control modulates the amplitude of Evolution's output.

**FREQ CV 3** A CV input into a conventional attenuator.

**Q LEVEL COMPENSATION** Controls the level of the frequencies below the resonant peak when Q is turned up.

**FREQ CV 2, Q CV 2, GENUS CV 2, SPECIES CV 2** CV inputs into attenuverters.

**1V/OCT** Calibrated 1 volt per octave Frequency CV input (highly accurate over 10 octaves).

**Q CV 1, GENUS CV 1, SPECIES CV 1** Full level CV inputs.

**INPUT** The signal to be filtered goes here. Evolution is DC coupled, so you can also filter CVs.

**OUTPUT** Sound comes out here.